WADE. (De W. C.)

A NEW ANTISEPTIC.

[De with Clinton Wade.]

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The name of the new therapeutic agent I am about to discuss, is the sulphite of aluminium. I have found no reference to it in literature. My attention has not been directed to its study by accident, but by a desire to pursue an investigation with reference to the development of antiseptic therapeutic measures, if possible, more fully freed from objectionable features, than any at our disposal. Long ago it was sufficiently evident, from the trend of medical literature, as well as from personal experience, that no agent in existence possessed enough merits to meet the requirements satisfactorily of general, practical antisepsis; to do which it would need to approach the following qualifications:

It should be at once—
Efficient.
Non-poisonous.
Unirritating.
Without offensive odor.
Soluble or insoluble, as desired.
Capable of remaining unaltered by albumen.
Not costly.
Sufficient for most purposes of the physician and surgeon.

The sulphite of aluminium combines these qualities, and I know of nothing else that does. After many chemical and clinical experiments, I am led to prefer the sulphurous salts of this metal as the best representatives of its antiseptic, therapeutic properties. Of these I have produced two—the sesquisulphite and the persulphite. The former is insoluble in water, and the latter soluble. These opposite physical properties render these salts susceptible of application to almost every conceivable condition where an antiferment is indicated. In

efficiency they should be ranked very high, on theoretical grounds. I have not yet proved by biological experiment their exact position in septicidal power; but, presuming that they are not less active than the acetate of aluminium, which is given by Sternberg as 1 to 6310 (De la Croix) and 1 to 5250 (Kuhn), it will be seen that there are no other agents nearly so active as the aluminium salts, that may be exhibited with the same freedom.

I do not know how large a dose of the sesquisulphite of aluminium might be safely taken into the stomach, but I do know that thirty grains has produced no disagreeable effect. Counting the practicability of using an antiseptic as an element in determining its efficiency, and in estimating this energy, a comparison with other familiar preparations must measure its usefulness. Taking bichloride of mercury as a standard, the comparison must be made thus: Miguel gives the preserving proportion of this germicide as equaling 1 to 14300. One-tenth of a grain is a large dose to administer by the stomach. Three hundred times as much sesquisulphite of aluminium can be administered with safety. If the bichloride is two and a-half times as active as the aluminium salt in equal quantity, the difference in dose permissible, favors the relative efficiency of the latter by one hundred and twenty times. Exactly the same relations exist in the topical use of these two chemicals.

It is not my intention to specify the diseases, internal or external, where an agent with the properties already mentioned are applicable. Considering the astringent properties of the aluminium salts as additional, and the indications for the use of these sulphites must be innumerable.

In regard to the chemistry and pharmacy of the sulphites of aluminium, I shall be brief. It appears, by reference to authorities, that aluminium unites with acids to form salts in the proportion of two molecular equivalents of the base and three of the acid, and in this way the sesquisulphite contains three times the number of equivalents of acid that the sulphite of sodium does. The persulphite contains additional sulphurous acid, the amount of which I have not yet determined. The insoluble salt may be made by taking the theoretical quantities

of potassic alum and sulphite of sodium and mixing their solutions in water; the precipitate to be washed and carefully dried. The proportion is ten parts of alum and eight of the sodium sulphite. In practice, however, it is found that no two samples of the commercial drugs give the same results as to proportion, but this is of no consequence, except in the question of economy of materials.

The persulphite may be made by adding sulphurous acid to the undried sesquisulphite to solution and crystallizing without heat. A more expensive, but much more rapid, method is to precipitate the persulphite from solution with alcohol, filtering or decanting, washing the precipitate with alcohol and drying on bibulous paper.

The practical pharmacy of the samples here shown was conducted by C. A. Wilson and J. W. Adamson, of Holly.